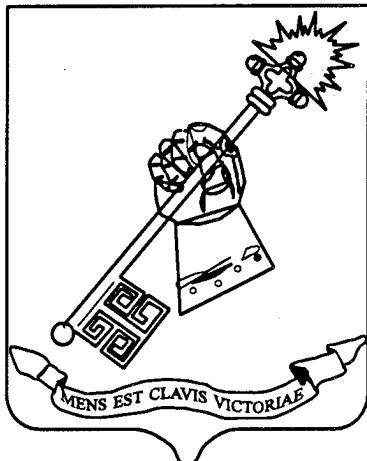


BUILDING A CAMPAIGN: THE ESSENTIAL ELEMENTS OF OPERATIONAL DESIGN

A Monograph
By
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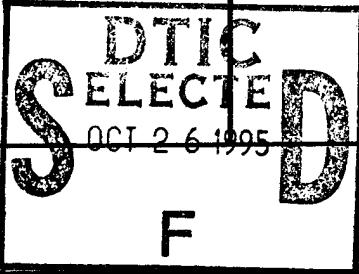
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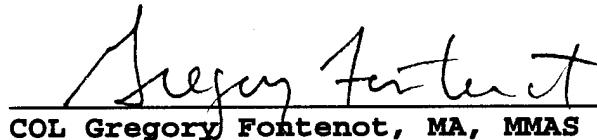
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ABSTRACT

BUILDING A CAMPAIGN: THE ESSENTIAL ELEMENTS OF OPERATIONAL DESIGN by
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This monograph addresses the question: What are the essential elements of operational design and commander's guidance that a campaign planner needs to produce an integrated operational concept for a joint campaign plan? While joint doctrine discusses operational art and campaigns, it does not provide a conceptual framework for planners to use in operational design. Although joint doctrine presents many elements and concepts in operational art the doctrinal publications fail to identify the essential elements of joint campaign design. This paper identifies those elements and places them in an operational and strategic context.

The monograph initially focuses on the design of a major, conventional land campaign in a joint and combined environment. It then examines the theoretical aspects of campaign planning. Next is a critique of joint doctrine that illustrates the lack of a conceptual framework for campaign design. OPERATION DESERT STORM is then examined to determine what elements were considered in the design of that campaign. The results are compared to doctrinal and theoretical statements. This is followed by the proposal of a set of criteria to identify potential elements of operational design and the use of those criteria to test candidate concepts.

The results of these analyses are a discussion of the essential elements of operational design and a supporting table of key considerations that influence the application of the essential elements of operational design and commander's guidance.

Note: The maps reproduced here are taken from the Final Report to Congress, Conduct of the Persian Gulf War, April 1992, pages 259, 271, 280, 285, and 291.

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Section I Introduction

"Nothing succeeds in war except in consequence of a well-prepared plan."

Napoleon

Today, operational planners are like emergency room doctors. At any hour of the day or night, a crisis can come wheeling in through their front door. Their ad-hoc team must immediately spring into action and devise a prompt solution to a complex problem. As recent history demonstrated, the timing and venue of crises can be quite unanticipated: Operation Urgent Fury (Grenada), Operations Desert Shield/Desert Storm (Kuwait and Iraq) and Operation Restore Hope (Somalia) were not missions the military anticipated.

Force projection is the basis of our national military strategy. Since crises often arise unexpectedly, the theaters of operations US forces will fight in are frequently unanticipated. Ad-hoc planning cells are quickly thrown together to produce campaign plans dealing with rapidly evolving situations. To further complicate the problem, it is not uncommon for the National Command Authority to ask the CINC to recommend courses of action before the NCA has defined clearly a strategic objective or end state. The reality of this strategic operating environment suggests a need to develop a *common conceptual framework* for operational design. This framework should facilitate rapidly producing feasible campaign plans under crisis conditions. Furthermore, if joint and combined planners shared a common understanding of the *essential elements of campaign design* planning would be vastly more efficient. The need for a common operational framework composed of essential elements of campaign design poses two basic questions for theater planners. **What are the essential elements of operational design? What guidance does a campaign planner need to produce an integrated operational concept for a joint campaign plan?**

Writing joint doctrine is currently a growth industry. The doctrine has many excellent discussions of operational art and its components. However, no joint publication lays out a conceptual framework that describes how to apply the appropriate operational concepts and elements. Joint Publication 3-0, Doctrine for Joint Operations, lists 14 aspects of operational art and campaign design. The doctrine further fails to assign priorities to any of the concepts discussed. Finally, joint doctrine does not identify measures of effectiveness with which to evaluate the applicability of concepts or elements in an actual campaign plan. What is needed is a logical thought process that facilitates campaign planning. This process should offer a reliable set of planning tools and pose certain questions that campaign planners should ask themselves and their commanders. This thought process should also focus the commander on the essential elements of operational design and key concepts that he must concisely convey to planners and subordinates. The identification and enumeration of the essential elements of operational design and their attendant key questions are the purpose of this monograph.

Given the limited scope of this paper, only five of the most commonly accepted doctrinal campaign concepts will be examined. They are: center of gravity, decisive points, culmination, sequencing/linkage and end state. These concepts were selected because they are frequently discussed in conjunction with campaign planning, seem to offer utility in design of campaigns and allow a reasonable focus for inquiry.

Establishing the "Range Fan"

This study is very deliberately focused at the theater strategic level. Furthermore, the monograph looks directly at the design of a major conventional land campaign in a joint and combined environment. While campaign planning clearly encompasses all the aspects of military power, the emphasis here will be on the creation of land operational plans. Even the most adept "joint planner" lacks

experience in efficiently integrating all the capabilities and limitations of the different services into a plan. However, if planners can share a common conceptual bias, the creation of campaign plans will be greatly simplified and improved. The goal of this monograph is to develop a field guide and methods that joint planners can apply when tasked to develop campaign plans.

To develop a field guide, it is appropriate to first review military theory. Such a review will reveal whether theory has anything useful to say regarding designing a campaign plan. Once military theory has been reviewed, it is then possible to compare current joint doctrine with the antecedent theory. This comparison will highlight the extent to which contemporary doctrine adheres to or departs from its theoretical roots. Finally, doctrine and theory will be examined in the light of empirical experience, *OPERATION DESERT STORM*. This last step allows the final identification of the essential elements of campaign planning and guidance.

Some Key Terms

However, before we can review either theory or doctrine, it is important to define some key terms. Precise terms are needed to express precise ideas. In this regard, joint doctrine fails to express clear ideas.

Joint Pub 1, Joint Warfare of the US. Armed Forces, defines a campaign as "...the art of linking battles and engagements in an operational design to accomplish strategic objectives."¹ Joint Pub 3-0, Doctrine for Joint Operations, states that "a campaign is a series of related joint major operations that arrange tactical, operational and strategic actions to accomplish strategic and operational objectives...within a campaign, major operations consist of coordinated actions in a single phase of a campaign and usually decide the course of the campaign."² Joint Pub 5-0, Doctrine for Planning Joint Operations, does not expressly define a campaign, but rather talks about campaign planning. It indirectly defines a

campaign as "...*a series of related military operations aimed to accomplish a common objective, normally within a given time and space.*"³ It should be noted that this is the definition used in Joint Pub 1-02, DOD Dictionary. Joint Pub 5-00.1, Doctrine for Joint Campaign Planning (Draft), defined a campaign using the same words as Joint Pub 1, cited above, but then went on for 14 pages to expand the definition.

The failure to provide a clear, consistent definition of a campaign makes the usefulness of the term suspect. How does one link a series of engagements and battles? How useful is the idea of art to a campaign planner who is a military technician tasked with designing war plans? What are the elements that relate major operations to strategic objectives and how do they accomplish this task? Neither the definitions cited nor the doctrine itself clearly answer the questions posed here.

The absence of clear definitions suggests the absence of clear concepts. Doctrine based on vague concepts will be equally vague. The impact of such ill-defined doctrine is wide ranging. For, example, does linkage mean that air and ground operations must be focused on the same objective? Can air forces execute campaigns independent of ground forces? If so, what does this imply about unity of effort in a theater of operations? How do operational planners know what enemy targets will have the highest payoff for a campaign? What is the most effective way to strike at an enemy in a theater of war? A doctrine that does not provide clear definitions tied to a method of applying the concepts embodied in the definitions will result in failure.

To avoid creating additional confusion, it is, therefore, necessary to establish definitions for key terms used in this paper. These definitions are drawn from the various doctrinal manuals. They represent an attempt to synthesize the

operational significance of these concepts and facilitate the systemization of campaign planning.

1. *Campaign: The linking of battles and engagements through a series of related, joint major operations in an operational design to accomplish strategic objectives within a theater of war or operations.*
2. *Campaign Plan: A campaign plan describes how these operations are connected in time, space and purpose.⁴*

The definitions chosen provide internal conceptual consistency and logical connection between the major elements of a campaign. Accordingly, they are more useful than the definitions currently offered in joint doctrine.

Section II A Look at Military Theory

Since modern military doctrine is grounded in theory, theory may help us identify the essential elements of operational design. Current military theory includes contemporary writings on campaign design as well as the classical works. The modern authors most useful for developing a practical framework for campaign planning are Colonels Tooke and Mendel from the US Army War College and LTC Dubik from the School of Advanced Military Studies. Their writing relies heavily on the works of the classical theorists, Clausewitz and Jomini, who are also cited. The classical writers were chosen because their ideas have stood the test of time. The contemporary authors were selected because they offered new ideas or useful perspectives. To facilitate comparison, the theoretical concepts of these authors are presented in a **Theoretical Sources Table**. While theory itself is not necessarily evidence of "truth," it is a reasonable point of departure in an inquiry that seeks a fundamental framework. Accordingly, our

analysis begins with some concepts offered by the classical theorists, Clausewitz and Jomini.

Clausewitz defined two major concepts that appear to have great utility in campaign planning: center of gravity and culmination. The first of these concepts, *center of gravity*, is an idea that has sparked entire papers defining the concept. Clausewitz wrote, "...out of the dominant characteristics of both belligerents...a certain center of gravity develops, the hub of all power and movement on which everything depends. That is the point against which all our energies should be directed."⁵ Clausewitz went on to point out that it is a major act of strategic judgment to identify these centers of gravity in the enemy's forces and determine how to attack them.⁶

The center of gravity has several implications for campaign design. First, the concept of center of gravity can be a tool for guiding analysis to discover what component of the enemy must be destroyed or unbalanced to defeat his forces. Secondly, the concept of center of gravity permits planners to develop a central theme around which to design an internally synchronized campaign plan. Finally, identifying centers of gravity at the tactical, operational and strategic levels of war leads to selecting logically consistent and mutually supporting military objectives in a theater of war.

The second major concept advanced by Clausewitz was *culmination*. This is a simple but powerful idea. Culmination describes that point in time and space when a force's combat power is no longer adequate to the task at hand. The idea has both offensive and defensive applications. Offensively, culmination occurs when the attacker can neither achieve his objective nor successfully defend what he has taken.⁷ Defensively, culmination marks that point when the defender must counterattack or risk losing entirely the ability to continue the defense successfully.⁸

Clearly, culmination has potential value for campaign planners in terms of calculating how far an attack can be prosecuted or a defense sustained.

Jomini was a contemporary of Clausewitz. Although he is less well known than Clausewitz, one of his ideas has survived in current doctrine. That idea is the concept of decisive points. Decisive points are usually geographical locations, that, when retained, provide a commander with a marked advantage over his enemy.⁹

The usefulness of this concept lies in its association with centers of gravity.

Decisive points are not centers of gravity; they are the keys to getting at centers of gravity. In short, a decisive point is the shortest and most effective way to destroy or unbalance a center of gravity. The significance of decisive points becomes most pronounced when the center of gravity cannot be directly attacked. This usually occurs due to the high degree of protection afforded centers of gravity. When this happens, planners focus on seizing or destroying those objectives, referred to as decisive points, that when taken or neutralized give access to the center of gravity.

The development of theory continues today through the efforts of contemporary authors. Colonels Tooke and Mendel, while at the Army War College, explored the concept of centers of gravity to improve its use as a concrete planning tool. They created a validity test for choosing a center of gravity. This test asks: "Will imposing my will on the enemy center of gravity create a cascading, deteriorating effect on morale, cohesion and will to fight that prevents my enemy from achieving his aims and allows achievement of my own? Further, if I have selected a valid center of gravity do I have a feasible ability to impose my will over it?"¹⁰ These are excellent questions that serve to sharpen a planners selection criteria for centers of gravity. The validity test suggests that if a force lacks the ability to impose its will over a valid center of gravity, then strategic aims must be readjusted or the campaign may fail.¹¹

Additionally, COL Mendel asked another question in his pursuit of operational logic. He posed this question in relation to the task of selecting a decisive point through which to engage the center of gravity. His question is very simple: How, when and where is the enemy to be decisively engaged to achieve strategic aims?¹² The answers to that question can provide the CINC with a very specific operational concept to execute his theater strategy. Furthermore, determining where the enemy will be decisively engaged is extremely useful for preparing guidance to planners.

Tooke and Mendel sought to organize campaign planning by defining a set of crucial questions. Their approach was novel and is potentially very useful. Their questions provide both insights to the campaign planning process and tools for its development.

They also defined another interesting concept, linkage. Linkage means that aims and objectives established at the tactical and operational levels should contribute to the ability to impose your will over the center of gravity at the next higher level of war. Operational and strategic centers of gravity should be attacked through operational and strategic military objectives.¹³ In other words, each operational or strategic objective is selected because it facilitates the attack on the associated center of gravity. The destruction of each subordinate center of gravity, in turn, facilitates the destruction of the next higher center of gravity in a mutually supporting chain of efforts. Linkage, then, serves as another check to insure that all campaign activities are mutually supporting. This support ties each tactical and operational event directly to the attainment of the strategic objective.

In contrast to Tooke and Mendel, LTC Dubik offers an entirely fresh view of campaign planning elements. In Dubik's mind, campaigns consist of four components: intellectual, psychological-physical, cybernetic and harmonic. The intellectual component provides a clear, achievable strategic aim and operational

objective through a coherent plan and vision of the commander. The psychological-physical element stresses a sufficiency of forces with competent and trained staffs and leaders. Adequate lines of communications and operations must be present to enable the campaign design to proceed. Finally, adequate logistics and political will are necessary to sustain operations until completion. The cybernetic portion relies upon a dependable command system that can obtain, process and disseminate decisions faster than the enemy. Additionally, the cybernetic system must have credibility among the leaders and their troops. The last of Dubik's four components is harmony. Harmony requires that each of the first three components of a campaign must be compatible with the other. The plan is, therefore, feasible in terms of time, space and assets available.¹⁴

The value of Dubik's four part construct of a campaign is that it encourages a planner to think holistically. He emphasizes the functional relationship between the various elements of the campaign and the strategic and operational objectives. This emphasis on the relationship between the parts and the whole of the campaign extends to the enemy as well. Such an approach encourages planners to think on the scale of the theater of war and its interrelated parts. This is a new insight that can be applied to the five original concepts discussed above.

This brief discussion of theory offers some promising considerations for campaign design. The theoretical concepts of center of gravity, decisive points and culmination offer great utility. Furthermore, their interrelation with each other through the concept of linkage seems to unify the planning process. Because a major problem of planners is to insure unity of effort, linkage now appears as one of our candidate elements. If these theoretical ideas have practical value, they ought to be observable in doctrine. Accordingly, it is to doctrine that the investigation now turns to see how joint doctrine has built upon the foundation of theory.

Section III A Critique of Doctrine

Joint doctrine has grown explosively since 1986. Its focus has been primarily two-fold. On one hand joint doctrine has sought to create a common set of joint procedures for all the services to use in planning and operations. On the other hand, doctrine has tried to explain the concept of the operational level of war and relate operational art to campaign design. The procedural effort has been largely successful. Operational art has not enjoyed similar success. While yeoman work has been done, the greatest problem remains the need for a coherent theme to tie together the various doctrinal elements of operational art and design. JP3-0,

Doctrine for Joint Operations, defines operational art as:

The employment of military forces to attain strategic and or operational objectives through the design, organization, integration and conduct of strategies, campaigns, major operations and battles. Operational art translates the joint force commander's strategy into operational design and ultimately tactical action by integrating the key activities of all levels of war.¹⁵

Joint doctrine defines operational art but does not describe how to use operational design to build a campaign plan. Joint manuals are replete with lists of principles, operational concepts, key planning considerations and factors. Nowhere, however, can you find how these ideas interrelate, what their applicability is or how to measure their effectiveness in achieving operational and strategic goals. There is a strong, if unstated presumption, that doctrine is deterministic. That is, if the lists are followed, the inevitable result will be victory. The planner is left with an 'operational' rucksack full of concepts and terms but no idea what to pull out first. Accordingly, the first step in identifying the essential elements of operational design is to seek some means of deciding what concepts in the rucksack are most useful.

Joint doctrine does a good job at discussing the individual "building blocks" of operational planning. For example, in Joint Publication 3-0, Doctrine for Joint Operations, the organization of a theater operational area is addressed in seven different variations. Unfortunately, no guidance is provided on how to optimize theater organization in accordance with a unifying concept.¹⁶ Similarly, the 14 characteristics of campaigns and operational art are described in some detail. While this is interesting reading, there is no structure to the discussion that would serve as a blueprint to employ these operational "bricks."¹⁷

Joint Publication 5-0, Doctrine for Planning Joint Operations, actually contains the first discussion of campaign planning.¹⁸ While this is useful in a general sense, the text is not clearly related to Joint Publication 3-0 and its lists of concepts. Joint Publication 5-0 notes that campaign plans are normally prepared only during crisis conditions, but provides no guidance on how to choose the planning elements appropriate to the situation.¹⁹

The lack of conceptual focus continues in other joint manuals. JP 3-0 states, " Campaign planning, like all joint operational planning, is based on evolving assumptions. It is characterized by the need to plan for related, simultaneous and sequential operations and the imperative to accomplish strategic objectives through these operations. Campaign planning is as much a way of thinking about warfare as it is a type of planning."²⁰ How can a planner think about warfare without an underlying vision of what constitutes a campaign plan? The manual is silent.

In short, doctrine does not inform the planner. Joint Publication 3-0 uses terms from Clausewitz, Jomini and other theorists. This is not inherently wrong, but it clouds the issue by not placing the terms in context or by giving them a structure. The six terms (center of gravity, decisive points, culmination, sequencing, linkage and end state) selected earlier as our guides for analysis are cited as elements of operational art or design but not placed within any larger

framework or blueprint for their application. Joint Publication 5-0 series discusses campaign planning by describing it as orienting on centers of gravity, achieving synchronization and defining success.²¹ This is the most definitive treatment of campaign design yet found in joint doctrine. The suggested idea of CINC's guidance hints of a conceptual framework. CINC guidance is built around three of the theater commander's concepts : the operational, logistics and command and control.²² By way of comparison, Joint Publication 1, Joint Warfare of the US Armed Forces, mentions two other concepts in addition to the operational concept. The two new concepts are deployment and organizational. Joint Publication 1 describes these commander's concepts as "the intellectual core of the campaign." but does not describe how to go about creating these core concepts.²³ These examples show joint publications talk around the issue of a common conceptual framework, with Joint Publications 1 and 5 not even agreeing on the elements of commander's concept. Doctrine begins to approach the need for a structure to guide the operational planner but fails to follow through. Instead, it reverts to a list of elements and considerations without any theme or framework to turn the "bricks" into a viable structure.

The **Doctrinal Sources Table** clearly displays the lack of a common framework in current doctrine. The table is an attempt to display key doctrinal concepts. The table contains some concepts called the elements of operational design, elements of operational art, key planning considerations and various other concepts. These terms reflect the plethora of ideas contained in doctrinal publications and the dearth of an organizing construct. If our survey of theory and doctrine has proved less than satisfactory, perhaps a look at an actual campaign can show how planners have resolved conflicts and have selected appropriate tools to build a campaign. While a single historical incident is not sufficient support for far

reaching general conclusions, an analysis of a campaign may point the way toward the structure and essential elements we seek.

SECTION IV PLANNING THE STORM

OPERATION DESERT STORM was an important event in the course of US military history. It was the first time the United States had conducted major combat operations since Vietnam. The war was also the first real opportunity to apply joint doctrine in combat since the Goldwater-Nichols Act reshaped the US approach to joint warfare. Finally, and perhaps most importantly, *OPERATION DESERT STORM* served as a chance to prove the competence of America's armed forces and to dispel any lingering doubts left from the past.

If theory and doctrine are useful tools for campaign planning, their influence ought to be visible in the planning and conduct of an actual campaign. Furthermore, the harsh realities of war should burn away peripheral concepts and highlight essential elements of the planning process. It is with these goals in mind that we turn to an examination of the planning effort for the Persian Gulf War.

The Planning Effort

Soon after Iraq's invasion on 2 August 1990, President Bush made clear that the invasion would not stand unchallenged. Unfortunately, Presidential rhetoric does not constitute a statement of war aims. Eventually, CENTCOM planners were able to translate that general pledge into specific national objectives. The objectives were:

1. Immediate, complete and unconditional withdrawal of all Iraqi forces from Kuwait
2. Restoration of Kuwait's legitimate government
3. Security and stability of Saudi Arabia and Persian Gulf
4. Safety and protection of lives of American citizens abroad²⁴

These four objectives served as the strategic end state that guided the planners. It is noteworthy that these objectives were apparently never stated in official JCS or Department of Defense planning guidance as strategic objectives. Instead, planners extracted these objectives from an analysis of the public broadcasts and incorporated them into the campaign design process.²⁵ If they were officially published , the small cadre of School of Advanced Military Studies (SAMS) led by LTC Joe Purvis, never saw them. This is an important point in that planners must be able to identify clearly the strategic objectives in order to translate them into achievable military objectives.

At the outset of the crisis, the immediate defense of Saudi Arabia depended on air power. On 10 August, the USAF Deputy Director Plans and War Fighting Concepts, COL John Warden, an air theorist and author of *The Air Campaign*, briefed CINCCENT in Florida on available options. His organization, dubbed, CHECKMATE, had produced a concept of strategic attack to take down Iraq in a week and, hopefully, force Saddam to withdraw from the Kuwaiti theater of operations (KTO). The CHECKMATE plan had no provisions to attack Iraqi forces on the Saudi border. In addition, the CENTCOM staff was not involved in CHECKMATE's work. Dubbed, *INSTANT THUNDER*, the CHECKMATE plan became the basis for the air operation that was to follow.²⁶

COL Warden staunchly believed air power could achieve decisive results without the need for ground operations. Accordingly, he and CHECKMATE designed a plan to attack what they considered to be Iraq's strategic centers of gravity. However, Warden incorrectly defined centers of gravity as enemy weaknesses, rather than the strengths defined by theory.²⁷ As a consequence, Warden's centers of gravity became confused with decisive points. This confusion did not prove to be fatal in the war because enormous quantities of air power was available. However, such a basic misunderstanding of the definition and

applicability of centers of gravity could have severe consequences in another regional contingency where aircraft are in short supply . This confusion of definitions could result in scarce air power being applied only to decisive points. The result would be that the protected centers of gravity would not be adequately struck because the decisive points, which are merely means to get at the centers of gravity, were treated as ends in themselves. That this did not happen was a fortunate result of the sheer number of aircraft available in the Gulf.

The preliminary deployment of air power to the Gulf was followed up by ground forces. As initial US ground forces rushed to Saudi Arabia, the CINC began to formulate his theater strategy. GEN Schwarzkopf roughed out a four phased concept for the campaign as follows:

Phase I: Air operations against "strategic" targets in Iraq

Phase II: Assure air supremacy by crippling Iraqi ADA and air forces in
KTO

Phase III: Prepare the battlefield by striking tactical ground targets

Phase IV: Conduct a ground offensive²⁸

As can be seen by these phases, GEN Schwarzkopf's thought process was strongly influenced by three elements: sequencing, phasing and the flexibility of air power. Sequencing of forces was unavoidable due to the deployment distances and times. Limitations on available transportation dictated that combat forces be deployed initially to protect Saudi Arabia. The essential combat service and support troops necessary for sustaining the effort would have to follow as soon as possible. This inability to deploy all desired elements simultaneously had a ripple effect on future operations. Subsequent operations could not be initiated until earlier, preparatory actions were completed. Consequently, the time needed to deploy ground combat power capable of offensive action required a phased buildup and deployment. The ability of Air Force units to fly themselves into the KTO had a different impact.

The immediate deployability of air power made it the initial focus of the defensive effort for Saudi Arabia and later to retake Kuwait. Hence, air power provided an immediate capability for planners to employ. However, if air power did not force the Iraqis from the KTO, a ground operation must sooner or later follow.

Recognizing the likelihood of a ground operation, the Army offered GEN Schwarzkopf four SAMS graduates under LTC Joe Purvis on 18 September. The SAMS graduates were tasked to look at offensive options. The CINC's initial guidance to the planners was general and sweeping. "Assume a ground attack will follow an air campaign...study the enemy dispositions and terrain and tell me the best way to drive Iraq out of Kuwait given the forces we have available."²⁹ Two of the SAMS planners remember the initial planning guidance as "...broad, unconstrained and general..." and that "destruction of the Republican Guard was inferred..."³⁰

The planning process that followed was single service and highly compartmentalized. This was partly due to political sensibilities and security concerns regarding an offensive campaign.³¹ Gradually, the Army and Air Force planning cells established informal liaison to begin coordinating their respective efforts. Later, more formal arrangements and the addition of other service and allied planners made the effort more efficient. One of the SAMS planners made an interesting comment on this effort. He observed that the Army viewed a significant Air Force mission as providing "a mechanism to help accomplish the campaign objectives...other than simply slugging things out."³² While this aside is in keeping with the AirLand Battle Doctrine it was not precisely what the CHECKMATE planners had in mind for the air "campaign." Their goal was to win the war without the need for a ground campaign. The Army planners assumed a ground campaign would be necessary and looked at air power as an essential component of a multi-service effort to defeat the enemy. The Army approached its' portion of the

campaign using the doctrine agreed upon by both services- AirLand Battle Doctrine. The key aspect of this was the synchronized application of land and air power in a theater to defeat an echeloned, armored force. In the Gulf War, the Air Force reverted to an earlier air doctrine that emphasized "strategic air power" along the lines of the WWII European bombing effort.

Another observation seems appropriate here. Both military theory and joint doctrine stress the need for thorough integration of the theater planning effort. Integration helps insure that the necessary operational-strategic linkage is maintained and that the proper targets are struck by the right forces to achieve the desired results. The tightly compartmented planning effort encouraged the planning of separate wars. The result of this compartmentalization was two semi-independent planning efforts that were physically and intellectually separated.³³ The Air Force effort, initially the only offensive effort possible, became for a time an independent major operation, an "air campaign." This parallel effort has lessons for future campaign planners. Failure to conceptually integrate a plan from the start greatly increases the likelihood of component service efforts diverging as the war develops. Divergence threatens the very idea of a campaign designed in accordance with a central theme using such common elements as center of gravity. One very real consequence of disparate component plans is missed targets and wasted efforts on less important targets. Independent service "wars" are inefficient and doctrinally prohibited for good reason. The waste in lives, resources and lost synergy is too high. The cost of this kind of parallel planning effort was affordable in the resource rich environment of the Gulf War; it may not be so in other contingencies with more competent foes and less suitable terrain.

Early pressure from Washington for decisive action forced GEN Schwarzkopf to generate an offensive option.³⁴ The first offensive concept used of a single corps (the only force then available) in high tempo, night attacks to fight

only selected enemy forces. The intent was to overwhelm the enemy defenses with mass rather than finesse. It was not the desired course of action but was the best that could be done with the forces available. The plan was briefed to the President on 11 October and was generally received poorly despite Schwarzkopf's clearly stated reservations.³⁵

As the planning continued, the CINC provided more guidance. Never liking the "One Corps Concept," GEN Schwarzkopf issued instructions to avoid frontal attack into Iraqi defenses. He made it clear that his goal was to destroy the Republican Guard, which he characterized as the first military center of gravity of the Iraqis.³⁶ Gradually, the various planning cells identified common strategic and operational centers of gravity. They were:

1. Command and control and Iraqi leadership
2. Weapons of mass destruction
3. Republican Guard³⁷

The concept of enemy centers of gravity was an important one for all involved. Schwarzkopf clearly saw the Republican Guards as the "hub of all power and movement" for the Iraqi army, and he directed that his theater planners focus on how to destroy those units. The destruction of the Republican Guards was definitely the center piece of the ground offensive and thus totally consumed army planners. Nevertheless, the Republican Guard was the operational center of gravity in the KTO rather than the strategic one..

Clausewitz suggests that there is only one strategic center of gravity in a given theater and it must be defeated in order to win at the strategic level.³⁸ For CENTCOM, that strategic center of gravity was Iraqi command and control and leadership. This center of gravity was hit primarily using air power of all types including cruise missiles and stealth aircraft. It is at this point that the largely separate Army and Air Force views of the center of gravity collide. The Army

wanted to apply air power exclusively to destroy the Republican Guard during the ground operation- an operational perspective. The Air Force wanted to continue its focus on "strategic" national targets across Iraq- a strategic perspective. Both sides had valid arguments for their positions. This dispute was never completely resolved because no integrated campaign planning mechanism existed to employ centers of gravity as a single concept. The result was disagreement between Army and Air Force planners and commanders concerning what targets to hit. Because the dispute was unresolved, the CINC was forced to arbitrate targeting disagreements. Accordingly, the CINC and his planners constantly adjudicated the application of combat power. The decision of which center of gravity to hit at which time was thus a major act of operational judgment throughout the war. Such decisions also have significant implications for future planners. A more competent foe in another regional contingency could exploit the weakness offered by divergent plans and reduce the damage he suffered accordingly.

GEN Schwarzkopf considered the maintenance of the coalition as the friendly center of gravity. If the frail bonds of the Arab commitment to the US led coalition could be broken, perhaps by drawing Israel into the war, it was quite likely the coalition would be torn apart.³⁹ Planners and the CINC were constantly troubled by this concern. As theory and doctrine point out, the decisive points that allow access to centers of gravity must be identified in advance in order to exploit or defend them. In this case, the Iraqis identified Israel as a decisive point through which to attack the center of gravity of the coalition. Their tool was the Scud missile that was intended to provoke Israel into entering the war. If Israel attacked Iraq, then the Arab members of the Coalition would be in the intolerable position of fighting with the Jews against other Arabs. To preclude this catastrophe, CINCCENT had to defend the decisive point, Israel, by stopping Scud attacks. The anti-Scud effort consumed substantial resources including Patriot batteries,

SOF units and nearly 800 air sorties per day.⁴⁰ Despite the importance of the Scuds, the main focus of planners continued to be the Iraqi ground forces.

By 15 October, GEN Schwarzkopf directed the planners to consider using a two corps attack option and a wider envelopment west of existing Iraqi positions. By 21 October he was briefed on the concept, enthusiastically approved it and directed that the Republican Guard receive the main effort.⁴¹ It was clear from the start that logistics were to be a vital portion of any such offensive option. In fact, using two corps created severe logistical constraints; thus available transportation became an "...annoying tether on planner's concepts, continually reining them back toward logistics bases each time they stretched too far too fast with too large a force."⁴² Given the enormous scope of the logistics effort involved in *DESERT STORM* and the expeditionary nature of US armed forces, logistics will be one of the most important considerations for future campaign planners.

The logistical challenges of supporting mechanized forces are easily illustrated. Consider the requirements of a modern armored force: fuel, parts, water, sophisticated munitions, replacement vehicles and personnel, medical support, aviation stores and hundreds of other commodities. All this must be deployed to a theater, organized for use and transported to troops in the field. One example will suffice to describe the magnitude of the logistics effort. The thirty day stockage requirement of the CINC necessitated that 1.3 billion ton-miles of cargo be moved from ports to combat units.⁴³ Having touched upon the challenges of logistics, we return to the operational aspects of the operation.

The final plan was briefed to the CJCS, GEN Powell on 22 October. Because additional forces were needed the Chairman agreed to support CENTCOM's request for VII Corps and added the First Infantry Division, a Marine Division, several carrier battle groups an additional MEB and more tactical fighter wings.⁴⁴ By 1 November, CENTCOM planners had begun to expand their

planning groups and were consumed by research to determine the logistics requirements for such a huge force. Sustainment in the desert for existing forces and support for the avalanche of new forces soon to follow were a major concern. Substantial numbers of combat service support units, many of which were in the reserves, were needed as much or more than combat units.⁴⁵ Reserves and force deployment priorities thus became major planning issues.

Once the detailed concepts were approved, planners had to translate them into concrete actions and orders. The tool that would implement the campaign plan was OPLAN 91-001: *DESERT STORM*. A review of the major elements of this order should demonstrate if the essential elements discussed in theory and doctrine were observed in practice. Those concepts were, center of gravity, decisive points, culmination, sequencing, linkage and end state.

Ground Offensive

The operational intent of the ground offensive was to concentrate strength against weakness using an indirect approach to unbalance and then destroy the enemy operational center of gravity. GEN Schwarzkopf clearly and forcefully identified the Republican Guards as the operational center of gravity. The destruction of the Guard was to be accomplished by fixing the bulk of the enemy with coalition forces "frontally" in Kuwait while two US corps struck deep to envelope the Republican Guard from the west. Accordingly, the bulk of the Iraqi forces and defenses were to be bypassed and the massed combat power of nearly five armored divisions slammed into the flank of the Republican Guards.⁴⁶

The concept of center of gravity is clearly embedded in the design of the ground offensive. The Guards are seen as the "hub of all power and movement" of the Iraqi army with operational success in the KTO directly tied to their destruction. Furthermore, the operational method to destroy the Iraqi forces implicitly exploits decisive points. The envelopment of the Republican Guard from the western desert

demonstrates the use of an operational decisive point, an open flank, to gain access to the center of gravity.

The use of sequencing is obvious in the ground plan. The deployment of forces into theater during the earlier build up is a practical example of the necessity of employing the idea of sequences or phases. Ground units preparing for combat normally operate in this manner. Actions from the tactical through the strategic level are clearly linked as demonstrated by the chosen operational maneuver (envelopment) and the selection of targets for the ground attack. The concepts of culmination and end state are not as clearly identifiable in the plan; they became more obvious during the ground war.

This discussion of the ground offensive is only a portion of the overall Gulf War effort. To assess the usefulness of our six concepts, we must also examine their relationship to the air campaign.

Air Campaign

Confusion exists in some minds over how many campaigns were conducted during *OPERATION DESERT STORM*. In fact, there was only one overall theater campaign , divided into four distinct phases. Unfortunately, commentators of the war have used the term campaign very loosely to mean just about anything. I have tried to prevent additional confusion by putting the term campaign into quotation marks whenever accounts of the war use the word loosely. Imprecise usage of campaign is significant because it continues to reinforce the idea that it is appropriate to wage independent campaigns within a theater of operations. Such a perspective defeats the very idea of a common conceptual framework for campaign design and encourages divergence of efforts.

The air "campaign" was originally devised to provide the President offensive options in the early fall. Its' focus was a three phase strategic attack against Iraq's strategic centers of gravity. However, by January enough air power

was available to conduct all three phases virtually simultaneously; thus applying overwhelming pressure from the opening moments of the air war.⁴⁷ That capability raises an important doctrinal point. The ability to execute several phases concurrently allows the planner to conceive of a campaign that strikes the enemy simultaneously throughout his depth, thus seriously complicating the enemy's defensive problems. LTG Horner, as JFACC or Joint Forces Air Component Commander, used this considerable capability, based on CINC guidance, to accelerate the pace of the air war.⁴⁸ Although ground commanders made recommendations regarding targets and timing of operations, it was ultimately the CINC's guidance that was met. This assured unity of effort within the theater, but it frequently displeased Army commanders who felt their needs were not satisfied. Nevertheless, CINCCENT was using air power to shape the entire theater in an unprecedented manner.⁴⁹

Air power was directed against enemy centers of gravity. However, because there was no single integrated campaign plan, the Air Force's view of these centers of gravity did not coincide with the Army's. The devastation wreaked by the allied air had enormous impact on the Iraqi forces and national infrastructure. Had the Coalition not enjoyed such overwhelming air power, the differing views of centers of gravity could easily have resulted in the Air Force concentrating on strategic targets and not providing assistance to the ground forces as they closed on the operational center of gravity. The ground forces would have faced greater risks which might have resulted in significantly higher casualties.

Closing Observations

A review of the planning effort for the Gulf War reveals the use of many of the doctrinal and theoretical concepts discussed previously. Some terms, like center of gravity and sequencing were explicitly used by planners in various documents. Others, like culmination or decisive points were not directly mentioned but are

discernible in the implementation of the plan. A review of the OPLAN reveals that the planners considered many other factors as well. Examples of these are the operational "imperatives" that derived from political as well as military considerations. These imperatives include deception, air superiority, attrition of Iraqi forces, and limiting friendly losses. These items were all important but should be seen more as campaign enablers than as essential elements.⁵⁰

Having discussed the planning considerations of *OPERATION DESERT STORM* it only remains to examine the final act, the ground war. This summary of the 100 hour ground operation will complete our look at the campaign and allow the final analysis of essential elements. As we review the actual conduct of ground operations, it is well to remember the observation of the German planner, Helmut von Moltke that no plan is likely to survive first contact with the enemy. This comment was once again born out in *DESERT STORM*.

A Brief Summary of the Ground War (See maps for additional details)

G Day, 24 February-The Coalition

When Coalition forces began the attack and breach, Iraqi ground forces remained in defensive positions in the KTO. There were no indications of any actual or planned troop withdrawals. In accordance with the plan, XVIIIth Airborne Corps penetrated some 260 kilometers to the Euphrates River and cut Iraqi lines of communications along Highway 8 to Baghdad thus isolating the enemy in the KTO and destroying any reserves in the process. The theater main effort, VIIth Corps, focused on its' main mission to destroy the Republican Guards. The Corps' axis of attack paralleled that of XVIIIth Corps (north then east) in order to trap and annihilate the Republican Guards.⁵¹ By 0600 hours, JFC - North, consisting of the Egyptian 3rd Mechanized Division, TF Khalid and TF Muthannah, began their attacks on Iraqi positions, followed by other Saudi and Kuwaiti forces shortly thereafter.⁵² Further to the east, at 0400, I MEF assaulted

the obstacle belt. The attack was aimed directly at Al-Mutl'a Pass and the roads leading from Kuwait City 30-50 miles to the northeast.⁵³ Finally, on the seaward flank, JFC-East began the attack at 0800 hours and was able to cut six lanes through the first obstacle belt. By the end of the first day, JFC-East had reported all initial objectives secured with large numbers of Iraqis captured.⁵⁴

The Iraqi Reaction, G Day to G+1 24-25 February

As the ground action progressed, Iraqi unit ineffectiveness became evident. The Iraqi III Corps had suffered severe damage in the run-up to G Day and in the initial preparation and assault. On the western side of III Corps, the 14th and 7th Infantry Divisions in front of I MEF were assessed as combat ineffective. On the east side of III Corps, the 18th and 8th Infantry Divisions forward of JFC-East were similarly assessed as combat ineffective although they offered stiff resistance against JFC-East near Mina As-Sa'ud. However, in Kuwait City the situation was different. The three Iraqi divisions and three special forces brigades dug into the city and its immediate environs were still carried as full strength and still fixated on the possibility of a US Marine amphibious assault.⁵⁵

The deep penetration by Coalition forces in the west side of III Corps prompted several battalion sized Iraqi counterattacks. However, these strokes were uncoordinated and resulted in heavy Iraqi losses for no gain. In the IVth Corps area of western Kuwait, in front of JFC-North, two more Iraqi divisions (20ID and 30ID) were rendered combat ineffective by the end of the first day.⁵⁶

By the end of G+1, Iraqi forward corps were combat ineffective and no longer capable of conducting a coherent defense in sector. The Iraqi Corps Commanders did not have a picture of the battlefield and had no idea of the scope and intent of Coalition ground force operations.⁵⁷ Disruption of Iraqi communications with their forward corps was a direct result of the USAF focus on attacking Iraqi command and control and leadership targets. The air effort

successfully "decapitated" the Iraqi leadership and thereby yielded operational and strategic benefits to coalition ground and air units.

The success of the first two days of operations was something of a surprise. The Coalition did not expect Iraqi forces to crumble as quickly as they did or to generate such a volume of prisoners. The rapid collapse of Iraqi defenses probably shocked the Iraqi high command as well. The disintegration of non-Republican Guard units validated the selection of the Guards as the operational center of gravity. Once the non-Guard units collapsed, the only remaining Iraqi element capable of effective resistance was the Republican Guard. Hence, the plan to bypass the bulk of the regular units and concentrate on destroying the Guard (a center of gravity) proved in practice to be the correct course of action.

G+2 26 February Destruction of the Second Echelon and Sealing off the Battlefield

Following the collapse of the front, the Iraqis began a massive exodus from the eastern part of the theater. The destruction of the second echelon and the sealing of the battlefield could begin. In the XVIIIth Airborne Corps zone, the corps turned to the northeast and advanced into the Euphrates River valley. Concurrently, the 101st Air Assault landed astride and cut the Iraqi lines of communications from the KTO. The VIIth Corps continued to drive north, deep into Iraq before turning east to attack reserve units and the Republican Guard. CINCCENT, based on his theater level assessment of the situation, directed the corps to accelerate its pace of attack.⁵⁸

JFC-North continued its attack, seizing its final objectives before the evening of 26 February. I MEF pushed its attack north to Kuwait City International Airport and the Al-Mutl'a Pass. I MARDIV encountered a desperate Iraqi armored defense at the airport but was able to seize the airport by 0330 hours the next morning, destroying 250 tanks and 70 other armored vehicles.⁵⁹ JFC-East

was so successful along the coast that its western boundary was changed twice and it was given four additional objectives. By day's end, the final preparations were made for Pan-Islamic forces to enter Kuwait City on 27 February.⁶⁰

The second day of the ground offensive proved to be even more spectacularly successful than first. The vaunted Iraqi defensive lines had been pierced quickly in numerous places with minimal losses. The Iraqi reserves and counterattacking forces had been smashed and routed. Conditions now seemed right to begin the "great wheel" to envelop and destroy the Republican Guard, the operational center of gravity of the Iraqi Army.

It was at this phase of the ground offensive that one of the most contentious issues of the war surfaced. The issue was VIIth Corps' speed of attack. Prior to the war, the best professional estimates available held that defeat of the Iraqi Army was almost certain. However, the war was projected to be a bloody affair on both sides. Consequently, US planners were very conservative in their estimates of the pace of the offensive. When the breach of Iraqi lines and the passage of VIIth Corps proved to be far easier than anticipated, commander's were caught off-guard by the magnitude of their success. Their ability to advance the timetable was hampered by the very deliberate nature of the planning and the difficulty of hastening the movement of the huge logistic tail. While this produced great fulminations at CENTCOM, it did not substantially impede the achievement of victory. It did, however, highlight a significant branch plan for consideration; the one that deals with near complete success.

G+3, 27 February Destruction of the Republican Guard

From CINCENT's perspective, G+3 was the time to exploit east to Al-Basrah and completely seal off the KTO. However, 24ID had to stop and refuel. While this refueling continued at a feverish pace, attack helicopters from the XVIIIth Corps and 101st AASLT occupied FOB Viper, another 200 kilometers

into Iraq and were interdicting the Basrah causeway by fire, although not with ground forces.⁶¹ To their south, VIIth Corps slowed down slightly to refuel and bring its divisions abreast. The corps then rolled east and executed a coordinated attack against the three mechanized Republican Guards Divisions still able to fight. By 2100 hours, 27 February, the 1st Cavalry Division had been released from theater reserve and had managed to close on the left flank of VIIth Corps. LTG Franks now had an armored fist of five divisions and an armored cavalry regiment with which to deal a killing blow to the Republican Guards.⁶² From the corps commander's perspective, he was conducting a movement to contact against defending forces, rather than an exploitation as perceived by GEN Schwarzkopf.

In the center and east, operations continued apace. JFC-East secured its final objectives south of Kuwait City and joined in occupation of the eastern edge of the city.⁶³

Coalition forces pressed their attack on the night of 26 February and throughout 27 February against disintegrating resistance. By the end of G+3, 33 enemy divisions were combat ineffective. With the exception of the Republican Guard units, the Iraqi forces had lost all cohesion and were in total collapse. Where the Republican Guards still stood and fought, they were decimated by the steel fist of VII Corps and the attack helicopters and aircraft of the coalition.⁶⁴ It began to look as if the destruction and ejection of the Iraqi forces from Kuwait was nearly complete. At home, the devastation along the Basrah causeway was portrayed by the media as definitive evidence of this assumption.

The results of the third day of the ground war substantiated the selection of the operational and strategic centers of gravity in the KTO. The units that tended to stand and fight were the Republican Guards; most of the rest of the Iraqi army vied only to see who could surrender first. Clearly the Guard was the key to the destruction of the Iraqi presence in Kuwait. Likewise, the Air Force focus on the

strategic center of gravity paid great dividends when Iraqi senior commanders lost the ability to either see or influence the battlefield. In a related sense, the use of the deep envelopment by both US corps and the employment of air mobile forces in operational depth clearly exploited the idea of decisive points providing access to the center of gravity.

The period from G day to G+3 is also instructive for campaign designers from the perspective of culmination and logistical sustainability. Clearly the Iraqis had reached defensive culmination when their G+1 counterattacks were crushed and their defenses collapsed. The obverse of defensive culmination is offensive culmination. This can be glimpsed in the reduction of the pace of attack as 24ID and VIIth Corps refueled, realigned and prepared to continue the attack. This is not to imply that the two corps were about to culminate. Rather, it serves to illustrate how the planners had insured sufficient combat power, backed by adequate logistics was maintained throughout the attack. Had the tempo of the envelopment slowed due to logistical shortages, the Iraqi forces might have been able to take the initiative. If the Guard had attacked under the cover of bad weather, the US assault might have culminated early. While this was not a likely event, the possibility did exist and does demonstrate the concept and effect of offensive culmination. CINCCENT planners clearly recognized that adequate logistical sustainment was a vital component of avoiding premature culmination and acted accordingly.

G+4, 28 February Offensive Operations Cease

Offensive operations ceased on 28 February at 0800 hours. At that time the XVIIIth Airborne Corps stood along a line generally 30 miles west of Al-Basrah. The VIIth Corps had continued to attack that morning to destroy the remaining Republican Guards units west of Al-Basrah. Whether it was appropriate to unilaterally halt offensive operations is a matter that will undoubtedly be debated

for some time to come. Nevertheless, the destruction of the Iraqi military seemed complete. VIIth Corps alone counted as destroyed 1,300 tanks, 1,200 armored fighting vehicles, 280 artillery pieces, 100 ADA systems and nearly 22,000 enemy prisoners of war taken.⁶⁵ On the basis of this magnitude of loss, it is easy to see how commander's on the ground could credibly believe that the Iraqi military had been dealt a mortal blow.

The post war criticisms concerning the repercussions of the cease fire timing highlights the need for a well defined end state. Much has been made of the clear statement of US strategic and operational objectives for *DESERT STORM*, especially when contrasted with earlier experiences such as Vietnam. However, part of the design of the military end state should be a "clear and common vision of how US forces should be distributed on the ground to facilitate the inevitable transfer of the conflict's focus and energies back to the political arena."⁶⁶ A subset of this vision is the military conditions that would apply to Iraqi forces once the cease-fire was implemented, or in other words, what action would US forces take in regard to Iraqi troops, equipment and their dispositions and movement.⁶⁷ It seems clear in retrospect that neither GEN Schwarzkopf nor his planners had thought this issue through in detail. The vague military conditions of end state (or conflict termination) have led to lengthy recriminations regarding the "escape" of mechanized elements of the Republican Guards, the bloody repression of Kurdish dissidents and the open-ended support to Kurdish refugees in northern Iraq. Given the example of the Gulf War, such end game vision is an important component of campaign planning. Whether such fundamentally political guidance can be obtained in the future remains to be seen. In its absence, the theater commander clearly has the responsibility to issue military instructions to his subordinate commanders that best supports the political objectives as he understands them. The CINC must maintain a clear view of the final strategic and political goals desired in

the theater. Whether or not he concurs with the decision to halt hostilities, he must place his forces in the most advantageous position to facilitate the eventual achievement of those ends. Deciding what those militarily advantageous positions are becomes an important component of structuring the end state.

Before we leave this short review of the ground war, it would be useful to examine how the six potential essential elements of campaign design fared in the overall conduct of the ground operation. The first of these elements is the center of gravity.

It is clear that from the outset attention was focused on what the CINC defined as the center of gravity. The idea of the center of gravity provided a major thread of continuity to the entire planning effort. At each level of war, decisions were made to target the strategic, operational and tactical centers of gravity of the Iraqi forces. For the air component, this began with the strategic targeting of the CHECKMATE cell and continued with strikes against the Republican Guard (operational center of gravity) and selected tactical units. The ground plan focused on the destruction of the Republican Guard as the key to the elimination of the striking power of the Iraqi army. As has been discussed, the idea of centers of gravity is allied to that of decisive points. This concept was successfully applied as well.

The planners at all component levels and CENTCOM used the concept of decisive points to gain access to the centers of gravity. While the term is not explicitly used in planning documents, the influence of decisive points in the operational design is clear. Decisive points were designated as objectives and used to gain access to centers of gravity. These decisive points were sometimes created. The novel idea of creating decisive points may not have been a conscious act on the part of air planners, but it occurred nevertheless. In this case, the US Air Force's use of stealth technology to neutralize the integrated air defense system of the Iraqis

allowed force to be applied to the strategic center of gravity, Iraqi leadership and command and control. This target would not have been attacked so cheaply if the complex air defense system had not first been destroyed. In effect, the elimination of the integrated air defense system created a vulnerability that allowed a direct attack on a center of gravity to take place.

Sometimes, decisive points were exploited through maneuver and deception as in VIIth Corps' envelopment of the Iraqi forces in the KTO. Here, the open flank and the Iraqi assumption that no one could effectively navigate in the empty desert combined to create a very lucrative vulnerability. In all cases however, the overriding operational concept was to apply strength against weakness by gaining an entree to the Iraqi centers of gravity via a decisive point. While successful, the ground use of decisive points entailed massive maneuvering. The ability to sustain the tempo and power of operational maneuver is influenced by the concept of culmination and leads us to our next point.

The campaign plan developed by the Coalition strove to force the Iraqis to pass beyond the point of culmination first.⁶⁸ The pounding from the air set the preconditions for ground success by depriving the Iraqis of many of the advantages of the defense. Instead of the Coalition being attrited by the obstacles and fires, the Iraqi commanders found themselves blinded and their units bludgeoned brutally by allied air and artillery. The great advantages of the defender, knowledge of the ground and the ability to site weapons for their best effects, were neutralized by coalition mobility and Iraqi inability to "see the battlefield". The result of this was that the Iraqis found themselves unable to execute the decisive element of a successful defense, the counter-attack. That moment may have been on midnight of 27 February when LTG Al-Rawi realized the magnitude of his defeat at the battle of Wadi al-Batin. He then ordered the immediate withdrawal of the remnants of the Republican Guard from the KTO to positions designated for the

defense of Iraq.⁶⁹ In short, the Iraqis had forfeited all the advantages of the defender and could neither counter attack nor continue to hold.

CENTCOM, in contrast, had yet to reach its culminating point. Despite the fact that many US units were nearing exhaustion from four days of continuous movement and combat, they were still able to fight coherently and sustain their operations.⁷⁰ In the final analysis, it did not matter how much longer CENTCOM could have continued operations, only that it could do so longer and more effectively than the Iraqi Army. However, the ability to predict when you will reach offensive culmination, it a critical skill for the attacker. If it is not determined within reasonable limits a commander may find that his entire campaign plan is compromised and all gains lost. This would obviously imperil the end state, not to mention the friendly forces committed. Successfully managing culmination and defeating the enemy will leave friendly forces in the best military posture to achieve the end state intended.

In the Gulf War, the military posture at the termination of hostilities was not fully integrated with the goals of the end state. While it would be incorrect to say that post hostilities' actions were not considered, the scope and speed of the victory caught many by surprise. In his memoirs, GEN Schwarzkopf describes the conversation he had with GEN Powell about ending the fighting. The CINC recounted that he felt the coalition had accomplished all its missions and that there was no overriding need to continue the killing any longer and a cease fire was acceptable. He goes on to make another telling point about ending the war. GEN Schwarzkopf says that he was surprised when the Chairman mentioned that President Bush would be asking for a meeting of generals from both sides within 48 hours. It had "never crossed his mind" that he would have to sit down and hammer out end state details.⁷¹ The imminent end state missions entailed were: enforcing the cease-fire provisions; demolition of abandoned equipment and ammunition,

humanitarian assistance on a massive scale, redeployment of friendly forces and supervision of the enormous numbers of Iraqi EPWs crowding Coalition cages.⁷² The Gulf War highlights the fact that the detailed planning for post-conflict activities appears to be at least as important as for combat operations.

The planning and conduct of the ground war demonstrate the influence of the six elements originally selected as essential components of campaign design. Numerous other factors and considerations also played a part in the design and conduct of the campaign and the war. The Historical Sources Table captures those considerations as well as the six more familiar elements of discussion. The historical sources table reflects the presence of myriad forces without unequivocally identifying essential elements. Nevertheless, the experience of history does provide us with the final tool to begin the selection of essential elements of campaign design.

SECTION V THE ESSENTIAL ELEMENTS OF CAMPAIGN DESIGN

Theory and doctrine have each offered viewpoints on campaign planning. Yet, neither perspective provided a comprehensive framework that synthesized the most useful components of theory and doctrine. *OPERATION DESERT STORM* broadened our appreciation of both theory and doctrine as they were actually applied and demonstrated some implications for future planners. As the review of the Gulf War showed, the elements of center of gravity, decisive points, culmination, linkage, sequencing, and conflict termination have made the transition from theory and doctrine to practice and survived the stern test of battle. Therefore, what has this inquiry taught us about the essential elements of campaign design and commander's guidance?

The first conclusion is the definition chosen at the beginning of the paper accurately reflects the concept of a campaign. The foundation of theory, doctrine and practice previously discussed now allows us to draw a holistic picture of a

campaign that captures the conceptual framework. The idea of a holistic perspective, a understanding of systems and their interactions, sums up the complex operating environment of a campaign. It is this conceptual framework that provides the structure necessary to intelligently employ the essential elements of campaign design. In short, the structural and conceptual framework provided by the definition facilitates the planning of a campaign. A brief analysis of the definition will illustrate this point and clarify the place and importance of the six essential elements of campaign design. The original definition was:

The linking of battles and engagements through a series of related, joint major operations in an operational design to accomplish strategic objectives within a theater of war or operations.

Given this definition, what are the enabling words or concepts that give it practical utility for planners? A reflection on the perspectives provided by theory, doctrine and history highlights several key enablers.

The first enabler is *linkage*. Linkage is an essential element of military campaign planning. All actions in a campaign must contribute to accomplishing the final objective. In other words, there must exist a purposeful linkage between engagement, battle and major operation such that each furthers the next higher purpose until the strategic goal is achieved. Intimately related to the idea of linkage is the phrase operational design. The inclusion of this phrase in the definition connotes deliberate and intelligent purpose in the course of events rather than serendipitous accident. Operational design provides the needed linkages. In effect, each action is carefully designed to achieve a condition on the battlefield that advances the overall effort toward the final objective. Each event sets the necessary preconditions for success at the next step. This idea of operational design naturally encompasses the next element, *sequencing or phasing*.

The idea of sequencing or phasing derives from the definitional phrase 'series of related, joint major operations.' This interpretation is reinforced by the use of the term "operational design" that suggests a pattern of activities. The very scale of war at the theater level means that battles and major operations are conducted over time and in a meaningful progression or pattern. Normally logistics challenges and sheer distance will suffice to produce sequential activities. The sequencing and phasing of operations is not an end in itself; it is a reflection of reality and limited resources. If operations can be executed simultaneously, so much the better. Unfortunately, it is not always possible, hence the need to plan in terms of sequencing.

Jointness next stands out as a central component of the definition. This is easily understood in the context of modern operational warfare's demand for the capabilities of all services. The last major enabler that appears is the idea of *decisiveness*. This is derived from the need to obtain strategic goals in a theater of war, that is, significant results on a grand scale. After all, a campaign is a massive undertaking and would not be hazarded without the promise of decisive results. In summary, our definition reveals four core ideas: linkage, sequencing, jointness and decisiveness.

What then does this analysis provide? It tells us that the chosen definition has practical use to a campaign planner. Furthermore, it provides the conceptual framework within which to employ the six elements of campaign design. Now, let us examine the six concepts suggested in this light. The first of these concepts is center of gravity.

Center of Gravity

As we have defined the center of gravity, it represents a strength and a key element of the enemy's power. Unhinge or destroy it at a given level of war, and you destroy your foe or eliminate his main capabilities. If you apply the center of

gravity concept to campaign design, continually defining and focusing on the enemy's centers of gravity, you will clearly create a linkage in your actions that continually reinforces the campaign plan. Each combat action is purposefully linked to the next higher objective until final strategic goals are met.

As the air "campaign" of the Gulf War demonstrates, sequencing and linkage can apply to centers of gravity. In this war we saw a phased application of military power, first air then both air and ground simultaneously. In both cases, military power was applied to crush the Iraqi centers of gravity. This example of ground and air power leads a planner to ask if the idea of center of gravity has utility from a joint perspective, as well as a single service view.

In most modern wars air, ground and possibly naval forces are used together. This was clearly demonstrated in the way the coalition pursued the Gulf War. Army, Air Force, Navy and Marine forces were liberally applied to the problem of attacking or enabling the attack of Iraqi centers of gravity. The flexibility provided by the use of different service weapon systems allows an enemy center of gravity to be threatened or attacked from multiple directions and venues. For example, the defeat of the Republican Guard (the operational center of gravity of the Iraqi army) was significantly facilitated by the air bombardment. Furthermore, the fixing of supporting Iraqi army forces by the threat of US Marine amphibious assault, as well as Marine and Coalition ground attacks, eliminated any hopes of redeploying several divisions to support the Guard. As these examples indicate, center of gravity is clearly an essential element of a joint campaign plan and provides the means to focus military efforts for decisive ends.

It seems obvious that if the proper center of gravity is selected (a significant task) and struck with adequate forces decisive results can be expected. The defeat of the Republican Guard produced decisive operational success. However, if

planners fail to select the proper center of gravity or forces are unable or insufficient to attack that center, decisive results cannot be expected.

As our entire examination of the essential elements of campaign design makes clear, the center of gravity is the single most important element of operational design. The center of gravity concept provides planners with the single most powerful idea around which to build the campaign. It is the tool that permits operational and strategic focus and enables the translation of that focus into concrete military objectives. Identifying the proper center of gravity, knowing when it changes and modifying the campaign plan accordingly are necessary operational skills. In the final analysis, selection of the center(s) of gravity will not design the campaign for the planner, but it will provide the critical coherence to focus efforts effectively on achieving strategic objectives.

Decisive Points

As we discussed earlier, decisive points are closely associated with centers of gravity and are best understood in relation to that concept. It is this key aspect of decisive point's relationship with the centers of gravity that earns decisive point the title of essential element. Remembering that decisive points are the key for getting at centers of gravity that cannot be attacked head-on highlights the great practical benefit of this concept. In these cases where a center of gravity is too well protected for effective attack, the concept of decisive points provides planners a powerful lever to pry open cracks in the armor surrounding the center of gravity.

A historical example of employing the idea of decisive points is the use of Army Apache helicopters to create a breach in the Iraqi air defense radar screen, thus permitting Air Force strike packages to penetrate unseen. These aircraft then went on to hit targets in the Iraqi strategic center of gravity.⁷³ In this example, planners created a decisive point by destroying a portion of the surveillance radar

sufficient to allow unobserved and unexpected approach to the enemy center of gravity. This use of decisive points is seen elsewhere in the war as well.

The envelopment of the Iraqi army by two US corps exploited a geographical "point", the open desert flank, to strike the Republican Guards from an unexpected direction. This course of action avoided fighting through the bulk of the Iraqi regular army, hastened contact with the operational center of gravity, the Guard, and quickly ended the fighting.

The conscious use of the essential element of decisive points, linked directly to their associated centers of gravity, helped produce operational and strategic success in the Gulf War. Even though planners did not use the term decisive points in orders, its influence and utility is obvious. Clearly, decisive points constitute another of the essential elements of campaign design.

Culmination

Successful campaign design requires that planners anticipate enemy and friendly capabilities accurately. A vital aspect of such anticipation is the ability to predict the point of culmination for the attacker and defender. Culmination has both offensive and defensive applications and affects friendly and enemy forces concurrently. Planners must be able to assess the effect of enemy action and the countervailing friendly responses sufficiently well so that the friendly course of action is not defeated.

Offensively, this equates to identifying when the attacker's combat power will no longer exceed that of the defender and hence counterattack and defeat is possible. Defensively, this is the point when the defender no longer has the capability to counterattack or defend successfully. The ability to predict this point in time, or see it coming early enough to act, is a vital operational skill for planners.

Few things can more abruptly end offensive or defensive actions than unanticipated culmination. The persistent collapse of Soviet offensives in the early

WWII period due to logistical and operational over-stretch is an excellent example of offensive culmination. Similarly, the Iraqi collapse on day 2 of the ground war illustrates defensive culmination. In both examples, decisive operational failures resulted.

The idea of culmination, then, is an essential element of operational design. When used in conjunction with properly selected centers of gravity and decisive points, culmination provides planners a predictive tool as well as a safety check on the operational soundness of their own campaign design.

Sequencing and Linkage

Modern war, at the theater level, is an immensely complex undertaking. Despite the effectiveness of our high technology weapons, large numbers of troops and equipment are still necessary. Today, even the world's sole remaining superpower, the US, cannot deploy all the forces required for the execution of a campaign simultaneously. The limitations on air and sea lift alone drive planners to sequencing major operations in a campaign. This need to sequence actions is further emphasized by the time consumed in establishing and replenishing the logistical bases that support operational maneuver forces. In the end, campaign planners are constrained to executing operations in a sequence that allows them to maintain the tempo and relative combat power sufficient to overwhelm the enemy and achieve the objectives. The art in this aspect of campaign design lies in crafting the campaign such that the enemy is unable to exploit any delays or gaps between major friendly operations. Accordingly, sequencing becomes an essential element of campaign design that must be incorporated into the framework that guides the application of combat power.

Closely tied to the idea of sequencing, is the concept of linkage. As has been pointed out in theory, doctrine and historical example, each action in a campaign should build upon the success of its predecessor and set the preconditions

for future successes. The unity of purpose that links military objectives with decisive points, centers of gravity and strategic ends serves to maximize the effectiveness of combat power applied. Hence, linkage denotes a conscious effort on the part of planners to insure each element of operational design is in harmony with the others and furthers the cause of operational victory.

End state (Conflict Termination)

It is important to remember that the purpose of operational victory is to secure strategic goals in the theater of war. While these strategic goals have been referred to as end state, a better way of describing the idea would be conflict termination. This phrase better captures the larger context of military and political conditions that must obtain at the end of a conflict. Conflict termination also includes the act of transitioning from combat to cessation of hostilities.

Campaign planners must not only understand what the strategic goals are for their theater, they must also be able to envision how military actions will allow a smooth segue into political resolution of the conflict. The ultimate purpose of the military actions preceding the end of hostilities is to set the conditions that will permit conflict termination on favorable terms. If the military action is too draconian for the situation, or does not otherwise facilitate transition to post hostilities activities then the war may not achieve its political purpose.

In the Gulf War, the full measure of success was not achieved in part due to the disconnect between military victory and political results. The survival of enough of the Republican Guard to insure the security of Saddam Hussein's regime and the unanticipated results of long term humanitarian assistance to Kurdish refugees have weakened the impact of operational victory. The lesson for campaign planners in this regard is to think through the political implications of military action following the cessation of hostilities. This thought process should prompt planners to ask pointed questions concerning the desired political outcomes

of the campaign. When these questions are clearly answered, planners can translate the desired political outcome into feasible military pre-conditions.

Conflict termination is in part the result of the sequencing of actions on the battlefield. The proper choice of military objectives and means will set the stage for achieving the political goals of the war. Conversely, the failure of the military effort to terminate the conflict on favorable terms may preclude the possibility of a permanent peace.

This paper has concentrated on six essential elements of operational design. Many other concepts have been encountered in the process that were not discussed in detail here. Accordingly, one final table is included in this paper. The **Key Considerations Table** is a listing of some other useful concepts that sometimes apply in campaign design. This admittedly arbitrary categorization includes some candidates for essentiality that did not pass muster but are worthy of close consideration and selected application.

It is now clear that the essential elements of operational design are: center of gravity, decisive points, culmination, sequencing, linkage and conflict termination. These concepts must be applied in the framework of the definition of a campaign and in accordance with the overarching guidance of the CINC. This guidance must describe how, where, when and why to engage the enemy. The operational planner who understands the proper definition of a campaign, these six essential elements and the CINC's guidance can confidently design a theater campaign.

This paper is offered in the hope that it provides a useful field guide for campaign planners. Like operational art, campaign design is as much a way of thinking about war as it is a course of action. Thus, campaign design and this monograph are best seen as evolving and pragmatic thought processes. In that

regard, a quotation from Dr. Richard M. Swain's book "Lucky War, Third Army in Desert Storm" seems an appropriate way to end this paper:

*"The operational artist was not the philosopher of war who recognized what needed to be done; he was the technician of war who knew how to do it with what was available."*⁷⁴

THEORETICAL SOURCES

<i>ITEM</i>	<i>REFERENCE</i>	<i>COMMENTS</i>
<u>Crucial planning question:</u> How, when & where to decisively engage enemy to achieve strategic aims.	<u>Military Review,</u> <i>"Operational Logic"</i>	Used in relation to CoG to select decisive point(s)
<u>Planner's Validity Test for CoG:</u> Will imposing my will on en CoG create cascading deterioration in his will, morale, cohesion; prevent his aims and further mine? Do I have ability to impose my will?	Ibid.	Key consideration to test choice of CoG, especially if means are limited/inadequate. Converse is that lacking ability to impose my will requires adjustment of strategic aims & consideration of new CoG.
Strategic Aims linkage to CoG	Ibid.	Proper linkage of strategic aims/CoG through opnl to tactical level will insure no loss of strategic focus.
Types of Campaigns	<u>AOASF Reading:</u> <i>A Guide to the Study of Operational Art & Campaign Design</i>	Exhaustion, annihilation or combination. Choice is not solely military. Key for conceptual clarity.
CINC Questions: What conditions needed; what sequence actions needed; how should resources be applied?	<u>AOASF Reading:</u> <i>The Campaign Planning Process</i>	Theme of key planning questions to formulate CINC guidance to planners.
<u>Conceptual Components of Campaign:</u> Intellectual; Psychological; Cybernetic; Harmonic	<u>AOASF Reading:</u> <i>A Guide to the Study of Operational Art & Campaign Design</i>	Idea of synergy & cybernetic "realm" is new & useful design concept.
Napoleon's 5 Principles for Campaigns: 1. Single line of opns 2. Main en army always obj 3. Place self on en flk/rear 4. Strive to turn exposed flk 5. Keep own LOCs safe	<i>Campaigns of Napoleon</i>	Practical approach for campaign planning
Pivot of Operations	<u>AOASF Reading:</u> <i>A Guide to the Study of Operational Art & Campaign Design</i>	Jominian concept of points at which cdr has option to shift the direction of his campaign
Center of Gravity (CoG)	<u>Clausewitz:</u> <i>On War</i>	Essential element of campaign planning
Culmination	Ibid.	Concept of offensive and defensive culmination

Phasing need not be sequential or discrete	Swain Papers, <i>Briefing on ODS Plan</i>	Useful planning concept
Forms of operational maneuver: central psn; maneuver on the rear; penetration; envelopment; exploitation	<u>AOASF Reading: A Guide to the Study of Operational Art & Campaign Design</u>	Planning consideration for executing concept

DOCTRINAL SOURCES

<i>ITEM</i>	<i>REFERENCE</i>	<i>COMMENTS</i>
Strategic Aim as central focus to campaign plan	FMFM 1-1	USMC doctrine. Serves to link CoG at all levels.
Strategic Operating Environment (SOE)	JP 5-00.1	Shapes CINC operating parameters and campaign design.
CINC guidance	JP 5-00.1	Key topics: opnl concept; log concept; C ² concept
Conflict Termination linkage to national goals.	JP 3-0	May be essential as long term measure of effectiveness (MOE).
Sequencing and opnl direction	FMFM 1-1	USMC doctrine. Important element of campaign design.
CoG, Lines opn, Culmin pt, ind approach, psn advantage, deception, concen, risk	JP 5-00.1	Elements of Opnl Art that are essential to operational design
Obj, sequencing/phasing, branches/sequels, simul opns	JP 5-00.1	Elements of Opnl Design
Clearly defined measure of success incl military objs & post-hostilities goals	JP5-00.1	MOE for entire plan is critical. Risk accepted where MOE not met.
Cdr's Concepts: Opnl, log, deployment, organizational	JP 1	Intellectual core of campaign plan
Targeting/Apportionment	JP3-0	Key planning consideration in campaign design
Media Impact on strategic & opnl plans/timelines	FM 100-5	Clear factor in current campaign planning
Balance, leverage, decisive points	JP 3-0	Most important concept may be decisive points
Operational Reach & culmination	JP 3-0	Essential element of operational design
Opnl Tempo	FMFM1-1	Important planning consideration
Air/Maritime/Space control	JP 1	Essential element, especially in force projection situation.
Symmetry/Asymmetry	JP 1	Desireable states in planning

HISTORICAL CAMPAIGN SOURCES

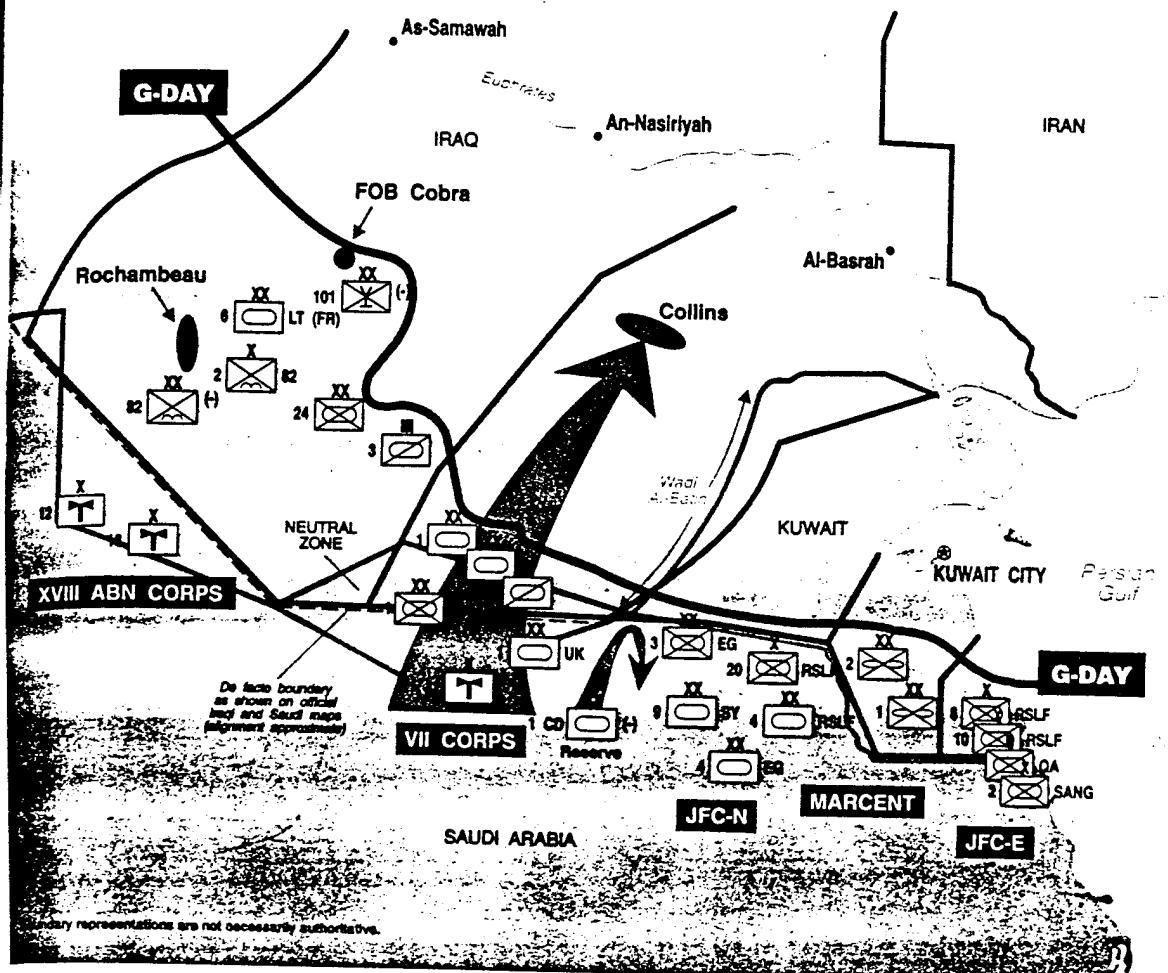
<i>Item</i>	<i>Reference</i>	<i>Comments</i>
Battle Damage Assessment	Atkinson, <i>Crusade</i>	BDA accuracy important in opnl decisions
Branch Plans	Schwarzkopf, <i>It Doesn't Take a Hero</i>	Key consideration as shown by Scud Hunt efforts
Considerations: Air power; munitions, reserve call-up	US News, <i>Triumph Without Victory</i>	Use of air to reduce grnd cbt power ratios & implications for 2 MRCs
Time Phased Force Deployment issues	Ibid.	Link between cdr's concept, force pkg, TRANSCOM & ability to act on the ground
Decisive obj, not political signals	Ibid.	Don't want to waste resources or let en set terms for action
Single CoG in theater	Ibid.	Crucial to see one strategic CoG in theater. Becomes essential in 2 MRC situation.
Chain of Command & clear, consistent strategic guidance	Schwarzkopf, <i>It Doesn't Take a Hero</i>	Impact of personalities, intensity of crisis & political desires for quick resolution
Unity of Effort in Coalitions	Ibid.	Command sensitivities cut both ways in coalitions
Need for centralized, joint campaign planning group	Atkinson, <i>Crusade & Swain Papers Interviews</i>	Time pressure, compartmentalization & service parochialism need to be avoided.
Military cost of political decisions	Woodward, <i>Commanders</i>	CINC must be able to explain impact of early halt decisions on campaign objectives
Risk and restraints (casualties)	Atkinson, <i>Crusade & Scales, Certain Victory</i>	If limits are exceeded, do we stop short of objectives?
Need to 'objectify' comparative standards of training, C2, log & doctrine	Friedman, <i>Desert Victory</i>	Need objective MOE for comparison of 'intangibles' to better assess self & enemy
Current & future ops planning	Scales, <i>Certain Victory</i> ; Title V Rpt, <i>Conduct of the Persian Gulf War</i>	Crisis planning overwhelms current ops staffs & leaves little ability to plan future ops
Training in theater	Title V Rpt, <i>Conduct of the Persian Gulf War</i>	Acclimatization & combined training may be key considerations
Directed Telescopes- LNO teams	Ibid.	Useful tool to provide commander with "ground truth." As necessary in own forces as with allies.

Operational/tactical PIRs	Ibid. Scales, <i>Certain Victory</i>	Need clear focus to reduce clogging system especially in 2 MRC situations.
Logistics support	Ibid.	One of the most essential items of campaign planning.
Deception plans (incl OPSEC)	Ibid.	Essential to success, especially in force projection or MRC contingencies
Deployment planning	Title V Rpt, <i>Conduct of the Persian Gulf War</i>	A JOPES, concept of opns & training issue. May foreclose or encourage options.
Doctrine	Scales, <i>Certain Victory</i>	A key element for Army; apparently same for joint operations
Indirect approach & CoG	Ibid.	CINC guidance reinforces theoretical precepts. USAF & Army approaches contrast each other.
Operational impact of terrain and weather (grnd & air forces)	Ibid.	Includes man-made as well as natural formations & effects
AI/BAI definition	Ibid.	Important consideration in achieving synchronization of effects
Culmination	Ibid.	Demonstrated effect of Iraqi culmination vs coalition
Conflict Termination	Ibid.	Need for active sequel planning to avoid post-war failures
Public perception	Ibid.	Key consideration especially in view of media access & impact on campaign objectives.

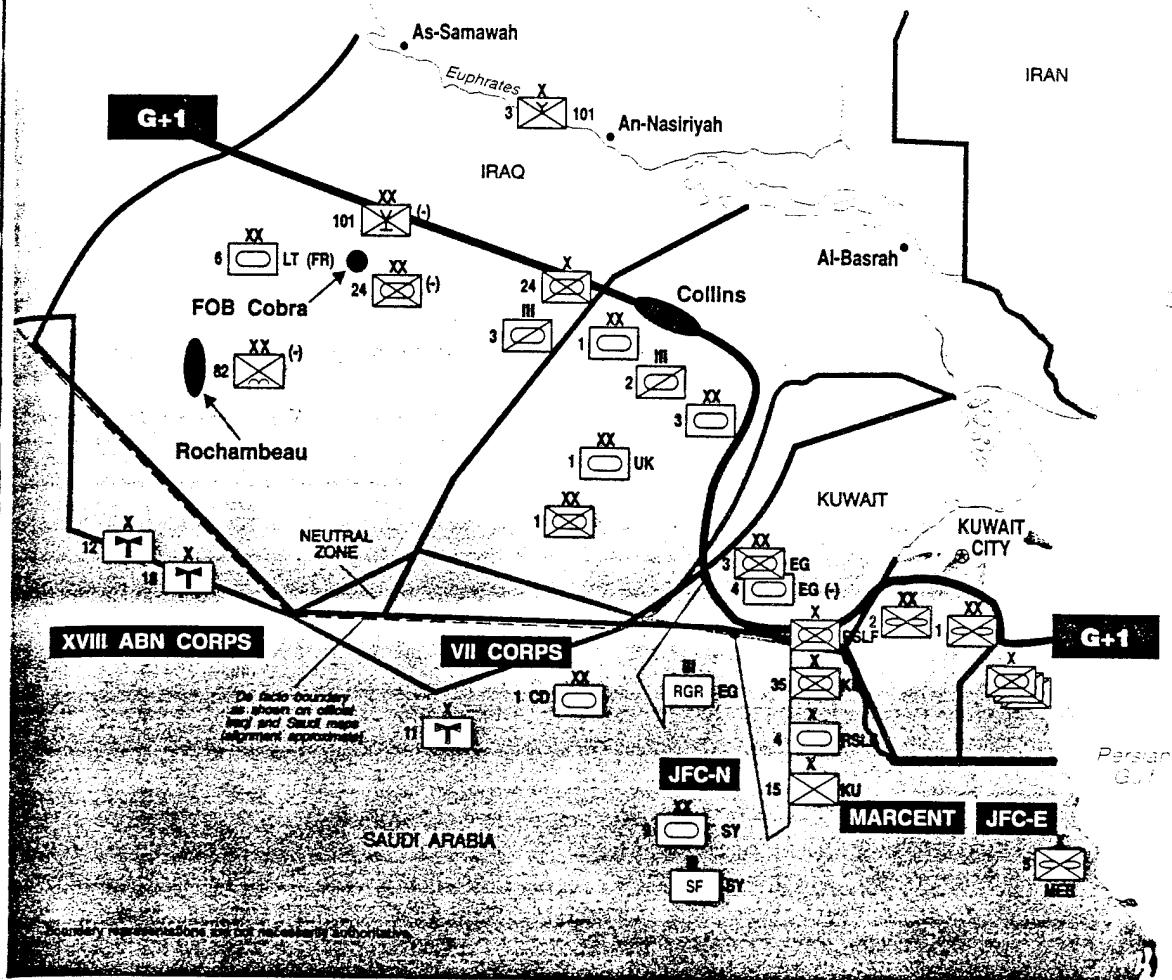
KEY CONSIDERATIONS		
Item	Reference	Comments
Strategic Aim	Doctrine, Theory, History	Cites importance of unifying aim to campaign plan. Similar to objectives/linkages idea.
CINC guidance/questions	Doctrine, Theory	Combines planners questions with initial CINC guidance
Clear Measures of Effectiveness	Doctrine, History	Larger concept of MOE for application of power (e.g.: air opn) or criteria of success for a given phase (e.g.: initiate ground war)
Deception	Doctrine, History	Includes OPSEC, multi-spectral deception, media awareness. Especially essential in force projection or MRC situations.
Leverage	Doctrine	Gain, maintain & exploit advantages in cbt power in all dimensions.
Branches and sequels	Doctrine, Theory, History	Required to maintain operational initiative and tempo
Tempo	Doctrine, Theory, History	The rate of work between engagements. Important relationships to operational reach and culmination
Air, Maritime, Space Control	Doctrine, History	Increasingly essential as technology expands size of battle space. Required condition for force projection.
Chain of Command	Doctrine, History	Impact of personalities, intensity of crisis & political pressure for quick resolution can muddy chain of command.
Logistics Supportability	Doctrine, Theory, History	This is final arbiter of operational possibilities.
In-Theater training	History	Acclimatization and <i>combined</i> training at various levels may prove critical
Directed Telescope	Theory, History	CINC's ability to see "ground truth" and influence allies
Doctrine	History	Common doctrine is key for joint efficiency

Public perception/media impact	History	Key, especially in view of media access & potential impact on campaign objectives via casualties
Risk	Doctrine, Theory, History	Has increased impact at operational/strategic level on national will vice casualties.
Simultaneous Operations	Doctrine, Theory, History	Technology driven approach to achieve synergy & tempo.
Operational Reach	Doctrine, History	Balancing of maneuver desires, log supportability & tempo relative to enemy. Related to culmination.

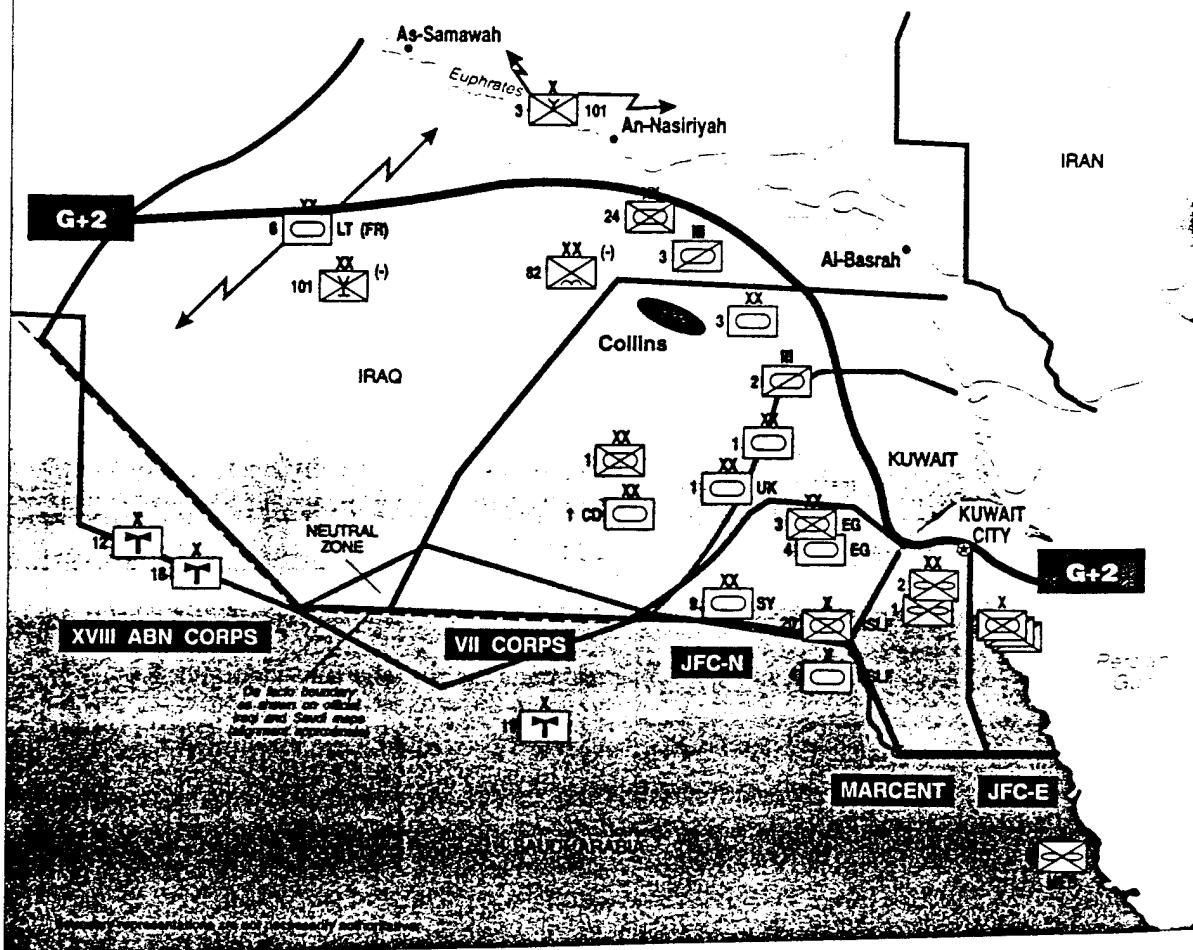
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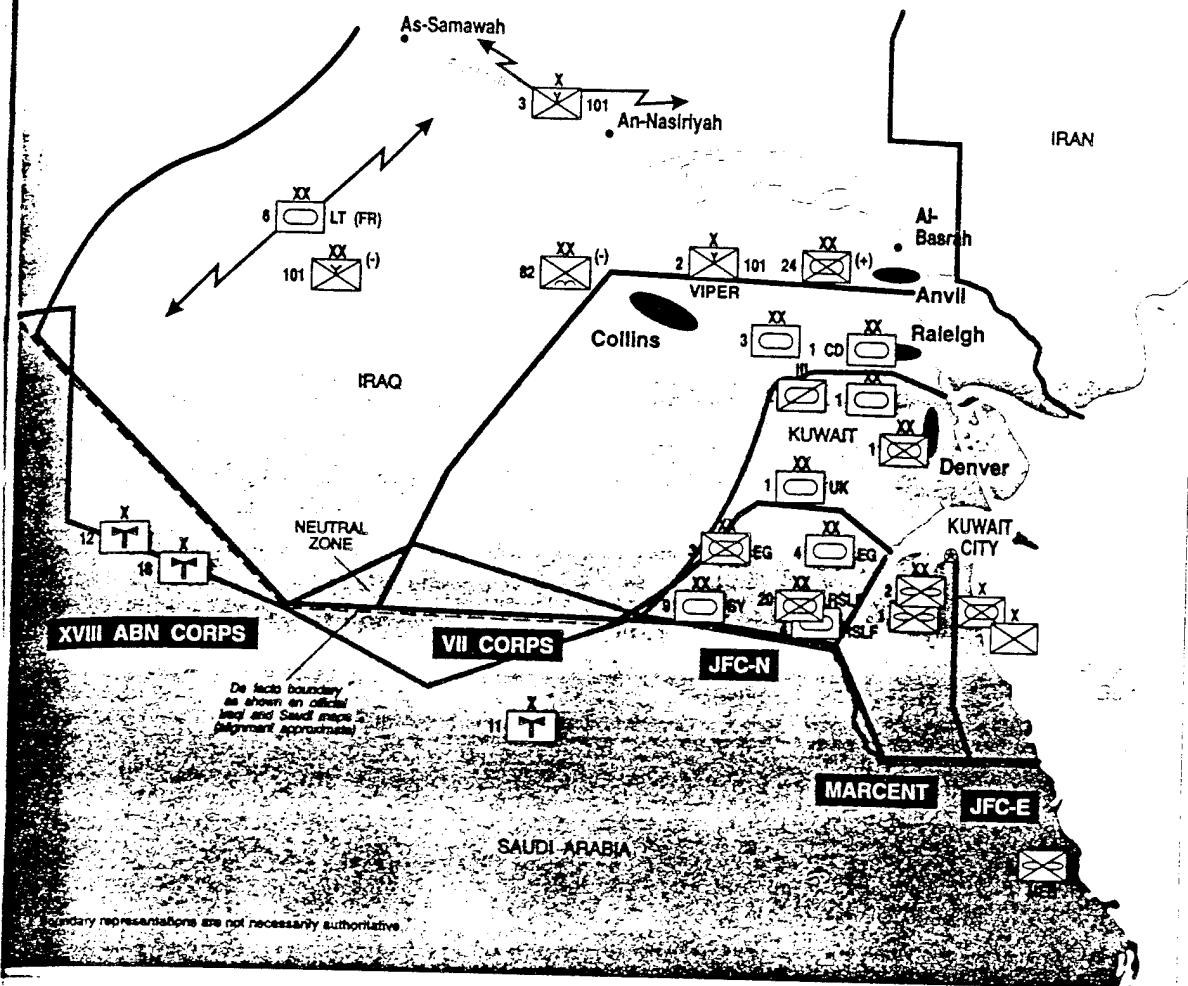
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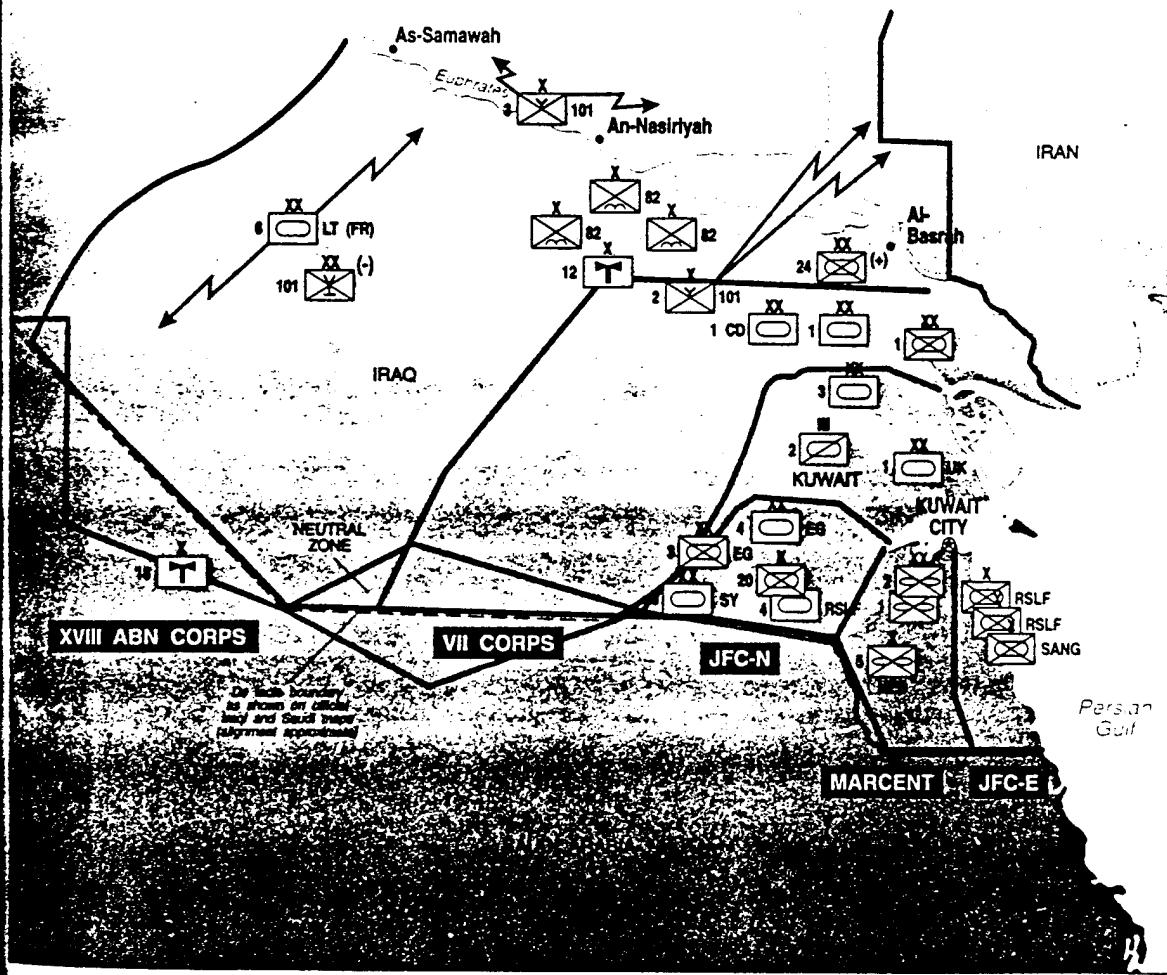
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G+3 - 27 February



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GLOSSARY OF TERMS

Branches and Sequels Branches are contingency plans- options built into the basic plan- for changing the disposition, orientation or direction of movement and also for accepting or declining battle. Sequels are subsequent operations based on the possible outcomes of the current operation: victory, defeat or stalemate. FM 100-5, Jun 93, p.6-7.

Center of Gravity "...out of the dominant characteristics of both belligerents...a certain center of gravity develops, the hub of all power and movement on which everything depends. That is the point against which all our energies should be directed. On War, p. 595-6.

"A center of gravity is always found where the mass is concentrated most densely. It presents the most effective target for a blow; furthermore, the heaviest blow is that struck by the center of gravity." On War, p. 485

Centers of Gravity are dynamic and may change as the conflict evolves but must be appropriate to the political aims and the nature of the conflict at the level for which you are planning (strategic, operational, tactical). Operational Logic: Selecting the Center of Gravity, p.2-4.

The concept of centers of gravity is central to operational design because it serves as a focal point for military effort within the context of the strategic and operational aims of the campaign. Centers of gravity that cannot be attacked by a campaign plan alert the planner to the need to modify campaign objectives or seek new strategic guidance. Failure to respond to this alert can result in strategic disaster. Similarly, mis-identification of centers of gravity can result in dissipated effort and operational or strategic failure.

CINC Questions Three vital questions must be addressed by the CINC:

1. What military conditions must be produced in the theater of war or theater of operations to achieve the strategic objective?
2. What sequence of actions is most likely to produce that condition?
3. How should military resources be applied to accomplish that sequence of actions?

The Campaign Planning Process, p.6.

Commander's Concept: This consists of four parts:

1. Operational concept based on theater strategy, which is the scheme for the entire operation.
2. Logistics concept which provides a broad picture of how the joint force as a whole will be supported. The operational concept may stretch but not break the logistic concept.
3. Deployment concept which includes the sequencing of operational capabilities and logistics support into the objective area.
4. Organizational concept of external and internal command relationships and, if required, organization for deployment. JP1, p.47.

Conflict Termination

The process and period during which military forces transition from active combat operations to post conflict activities and from post conflict activities to redeployment. FM 100-5, Jun 93, p G2.

Since the nature of the termination will shape the future of the combatants it is fundamentally important to understand that conflict termination is an essential link between national security strategy, national military strategy and the post-hostility aims. JP3-0, p. 3-12.

Culminating Point

Culmination has both offensive and defensive applications. In the offense the culminating point is the point in time and location when the attacker's combat power no longer exceeds that of the defender. Here the attacker greatly risks counterattack and defeat and continues the attack only at great peril. The art of the attack is to secure the objective before reaching culmination.

A defender reaches culmination when he no longer has the capability to go on the counter-offensive or defend successfully. The art of the defense is to draw the attacker to his culmination, then strike when he has exhausted his resources and is ill-disposed to defend successfully. See *operational reach*. FM 100-5, Jun 93, p. 6-8.

Decisive Point: A point, usually geographical in nature, that, when retained, provides a commander with a marked advantage over his opponent. Decisive points could also include other physical elements such as enemy formations, command posts and communications nodes. FM 100-5, p. G2.

Decisive points are not centers of gravity; they are keys to getting at centers of gravity. FM 100-5, p. 6-8. Because of this last point, the ability to identify decisive points before the enemy does gives a commander the capability to either exploit the opportunities they offer or foreclose vulnerabilities they expose.

Lines of Operation define the directional orientation of the force in time and space in relation to the enemy. They connect the force with its base of operations and objectives. FM 100-5, p. 6-7.

Measures of Effectiveness

A statement of the conditions that are expected to obtain at a given time and situation. To the extent that conditions are not met, the Joint Force Commander identifies risk in progressing to the next phase of major operation. He may accept that risk or direct additional action to reduce it. JP 5-00.1, p I8-9. Measures of effectiveness are vital elements in campaign design because they provide objective criteria to use in decision making and in evaluating the degree of success enjoyed in any given phase of major operation.

Operational Reach

The maximum distance in time and space from a base of operations that campaigns and major operations may be conducted and sustained. This is distinct from but related to strategic reach which pertains to the projection of forces into a theater of war or operation. The ability to sustain operations for a specified time and the need to avoid unexpected culmination are components of operational reach. They must be translated into time and distance factors for operational planning. Author.

Sequencing and Phasing

The sequence of major operations should support the desired tempo. The sequence that commanders choose should not foreclose future options but should be flexible enough to accommodate change. A phase represents a period during which large numbers of forces are

involved in similar activities. Changes in phases at any level can lead to a period of vulnerability for the force. FM 100-5, p. 6-9.

The JFC visualizes the sequence of operations necessary to achieve desired conditions of the end state. This includes identifying the enemy center(s) of gravity, culminating points and protecting the friendly center of gravity. This process is useful when determining phases of a campaign and applying resources against these phases. It is also useful in enabling the JFC to visualize branches and sequels.

Campaigns may be divided into phases which focus on major changes in the nature of the total effort. Some campaigns may be naturally progressive while others are more complex. For each phase, the JFC should describe a main effort. Each phase should lay the ground work for its successor until a final decisive effort can be joined. A phase may orient on a physical objective or on establishing a certain advantageous condition.

Description of each phase should identify the strategic tasks to be accomplished together with the ultimate purpose behind the strategic task. Prior to phase termination, forward planning for reaching the transition point or condition necessary for moving to the next phase occurs. Do not allow the method to become slow or ponderous. JP 5-00.1, p.52-58.

Strategic Operating Environment

That environment which includes aspects of each of the elements of national power: political, economic, military and cultural. The theater commander describes this environment and how it impacts on the campaign in his strategic estimate. JP 5-00.1, p. I-2.

Note: The theater commander must also consider other national, non-national and transnational actors and influences that impact on the current or likely strategic situation. He must also attempt to analyze the strategic operating environment of the enemy in order to assess the effectiveness of his course of action from the perspective of the enemy.

Tempo

The rate of military action; controlling or altering that rate is a necessary means to initiative. All military operations alternate between action and pauses as opposing forces battle one another and fight friction to mount and execute operations at the time and place of their choosing. FM 100-5, p. G9.

Note: It is not in absolute terms that tempo matters but in terms relative to the enemy. We create tempo by multiple tactical actions taken simultaneously, by anticipating tactical results and developing sequels in advance. FMFM 1-1, p. 73.

A BRIEF CHRONOLOGY OF DESERT STORM

The following dates are designed to highlight some of the key events that influenced the planning for *Operation Desert Storm*. Most of the dates represent events that influenced pre-war planning militarily, politically, and socially (primarily via media coverage).

- 2 August 1990 Iraq invades Kuwait
- 5 August President Bush declares invasion "will not stand."
- 6 August King Fahd meets with SECDEF, requests US military assistance
- 10 August COL Warden, chief of USAF CHECKMATE air planning cell, meets with GEN Schwarzkopf to outline proposed air "campaign"
- 18 September GEN Schwarzkopf directs SAMS planners to begin looking at offensive plan
- 10 October CENTCOM's One Corps Concept unveiled at White House
- 21 October CJCS flies to Riyadh to discuss offensive plans
- 31 October President Bush decides to double US forces in Saudi Arabia
- 29 November UN Security Council authorizes use of "all means necessary" to eject Iraq from Kuwait
- 12 January Congress authorizes use of force
- 15 January UN deadline for Iraqi withdrawal
- 17 January Allied attack begins with Army Apaches
- 18 January First Scuds hit Israel
- 26 January US Marines in Oman participate in *Sea Soldier IV*, rehearsal for amphibious landing on Kuwaiti coast
- 2 February GEN Schwarzkopf formally decides against amphibious landing in Kuwait
- 6 February VII Corps finishes closing in theater
- 7 February CIA notes large discrepancy between Washington and Riyadh regarding BDA of Iraqi armor from air attacks
- 8 February SECDEF and CJCS fly to Riyadh for final review of ground war plans
- 13 February Strike on Al Firdos bunker kills more than 200 civilians and leads to restrictions on strategic bombing "campaign"
- 16 February VII Corps moves into final attack positions
- 18 February USS Tripoli and USS Princeton strike mines. Army complaints about insufficient air support lead to confrontation with Air Force
- 23 February Army SOF teams inserted deep into Iraq
- 24 February Ground attack begins. CINC decides to accelerate main attack of VII Corps by 15 hours
- 26 February VII Corps hits Republican Guard in Battle of 73 Easting
- 27 February Kuwaiti City liberated. President and advisers agree to stop war.
- 28 February Cease fire takes effect at 0800 hours
- 3 March GEN Schwarzkopf meets Iraqi generals at Safwan

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